CLAIMS

1. Automatic gearbox for a vehicle, with at least one hydraulically actuated shifting element (1) made as a transmission clutch, which comprises an inner disk carrier (7) and an outer disk carrier (4) on which, respectively, inner disks (9) and outer disks (8) are arranged rotationally fixed but axially displaceably, the said disks being arranged one after another in alternation to form a disk pack which can be acted upon by an actuator (16) with an axial actuation force (F_1) to close the shifting element (1), and in which one disk carrier (4) is connected to non-rotating or rotating gearbox components and the other disk carrier (7) can be connected via a synchronization device (2) to rotating gearbox components (3), characterized in that the synchronization device (2) can be actuated by means of a second actuator (13, 18, 27, 33).

2. Automatic gearbox according to claim 1, characterized in that the synchronization device (2) comprises a positive-locking element and/or a frictional element.

3. Automatic gearbox according to claim 2, characterized in that the frictional element is formed as a synchronization ring (11) with a synchronization area (12) on one of the two disk carriers (4).

4. Automatic gearbox according to at least one of claims 1 to 3, characterized in that the positive-locking element is formed as a sliding sleeve (14), which is fitted rotationally fixed but axially disiplaceably over outer teeth (17) on the rotating or non-rotating gearbox component (3) in such manner that once the rotation speeds of the fixed and rotating gearbox components (3) have been equalized, it can be pushed with positive locking onto the synchronization area (12) of the disk carrier (7).

5. Automatic gearbox according to at least one of claims 1 to 4, characterized in that the sliding sleeve (14) can be actuated by the second actuator (13).

6. Automatic gearbox according to claim 4, characterized in that the second actuator (13) is formed as a shifting fork of a control positioning device, which engages in a circumferential groove (38) of the sliding sleeve (14).

7. Automatic gearbox according to claim 5, characterized in that the second actuator is formed as a second actuation piston (18) which, together with a first actuation piston (6) that serves to pressurize the clutch disks (8, 9), is guided axially within a common actuation cylinder (5).

8. Automatic gearbox according to claim 7, characterized in that in the common actuation cylinder (5) for the two actuation pistons (6, 18, 27, 33), there is a common pressure space (20), or respective separate pressure spaces for each of the two actuation pistons are formed.

9. Automatic transmission according to claim 8, characterized in that the two actuation pistons can be acted upon by the same actuation pressure (p_k or by different actuation pressures.

10. Automatic gearbox according to at least one of the preceding claims, characterized in that a first restoring spring (24) is associated with the first actuation piston (6) and a second restoring spring (25) with the second actuation piston (18), on their respective sides facing away from the pressure space (20) of the actuation cylinder (5), which rest against a component fixed to the housing when the shifting element (1) is made as a transmission brake and against a rotating gearbox component when it is made as a transmission clutch, the restoring force of the said first spring (24) being larger than the restoring force of the second spring (25).

11. Automatic gearbox according to at least one of the preceding claims, characterized in that the sliding sleeve (19) is guided axially displaceably on inner teeth (23) of the inner disk carrier (7) and is actively connected to and can be axially displaced by the second actuation piston (18) via a connection element (26).

12. Automatic gearbox according to at least one of the preceding claims, characterized in that a first synchronization area (41) is formed on the radially inward-facing side of the outer disk carrier (4), and a second synchronization

area (28) which co-operates with the first synchronization area (41) to achieve rotation speed synchronization is formed on the end face of the second actuation piston (27) remote from the pressure space.

13. Automatic gearbox according to at least one of the preceding claims, characterized in that on the outer periphery of the first actuation piston (6) is fitted axially displaceably a sliding sleeve (39) which is actively connected to the second actuation piston (33), which is arranged radially outside the sliding sleeve (39) and together with it in the same compression cylinder (5) as the first actuation piston (6).

14. Automatic gearbox according to claim 13, characterized in that on its outer periphery the sliding sleeve (39) has axially directed teeth (32) on which a synchronization ring (35) is arranged in axially displaceable but rotationally fixed manner.

15. Automatic gearbox according to at least one of the preceding claims, characterized in that on a synchronization area (34) formed on the inner circumference of the outer disk carrier (4) there is an axially directed toothed area (36), in which the outer teeth (32) of the sliding sleeve (39) can engage with positive locking.

16. Automatic gearbox according to at least one of the preceding claims, characterized in that on the inner circumference of the sliding sleeve (39) there is formed a locking device (37), which only allows axial displacement of the first actuation piston (6) when rotation speed equalization has been achieved by means of the synchronization device (34, 35) and there is a positive-lock connection between the sliding sleeve (39) and the outer disk carrier (4).

17. Automatic transmission according to at least one of the preceding claims, characterized in that on the first actuation piston (6) there is formed a projection (41) extending axially away from the pressure space (20) of the piston-cylinder arrangement (5, 6, 33), by means of which the inner or outer disks (8, 9) of the shifting element (1) can be acted upon by the first actuation piston (6) with an actuation force (F_1).

18. Automatic gearbox according to at least one of the preceding claims, characterized in that instead of a synchronization ring, an additional small, hydraulically or electro-mechanically actuated disk clutch is arranged between the disk carrier and the rotating gearbox component or the component fixed on the housing.

19. Automatic gearbox according to at least one of the preceding claims, characterized in that a hydrodynamic locking device is provided for the first actuation piston (6), which is released when a frictional and/or positive-lock connection exists between the component of the shifting element that is to be immobilized and a gearbox component fixed on the housing.

20. Automatic gearbox according to at least one of the preceding claims, characterized in that by at least one of the two actuation pistons (18, 27, 33) or by the second actuator (13), an electric switch can be mechanically actuated, by means of which a flow of lubricant can be turned on or off.

21. Automatic gearbox according to at least one of the preceding claims 1 to 20, characterized in that a hydraulic slider (hydraulic actuating means) that can be actuated by the second actuator (13) can mechanically actuate an electric switch, by means of which a lubricant flow can be turned on or off.